

---

# Promoting Effective Learning Environment in CALL

Katsuko Matsubara\*

## INTRODUCTION

Fast-paced globalization and technological development has imposed the use of computer into the classroom. From word-processing to creating a web page, educators utilize technology for helping to change the traditional learning environment. Language teachers are no exceptions. Computer assisted language learning (CALL) became popular among language instructors to exploit new ways to teach English through computers. While restricted learning environment such as limited number of computers per student and strict budget policy somehow slow down the widespread use of CALL in Japan, when CALL is provided, it will give students wide variety of learning options and provide individualized learning (Edwards, 2002; Matsubara, 2002).

The increasing number of students using computers for their learning influenced to changing the traditional classroom learning. Now students use computers to help and accelerate their learning. Language learning assisted by computers is no exception. The educators introduced CALL into the language classroom for adding new aspect and variety of learning to the traditional teaching environment. The impetus of Internet also added significance of learning English since majority of Web pages are written in English. The emergence of CALL as an additional learning tool for language learners in the classroom seems to be appropriate in order to meet the current trend in information technology.

While the educators and classroom instructors are eager to adapt computer-technology, it is inevitable to exploit the benefit of CALL in order to facilitate learning. Since computers can respond quickly and provide attractive audiovisuals, it sounds promising that computers will add varieties of activities, raise students' interest, and personalized learning. However the classroom instructors should have careful insight when incorporating CALL to provide additional learning to regular teacher-oriented classroom. There are issues, which the instructors need to focus on in order to promote an effective learning environment in CALL. For example, the structure of learning environment may be different from those in the teacher-oriented classroom, because the students initiate learning and they can choose types of strategies that are most comfortable for them. As a result, learning with computers becomes more individualized. Thus, computers work as not merely additional learning tools,

but tend to reshape the classroom learning process (Meskill & Swan, 1999).

In order to provide efficient learning in CALL, the educators need to focus on creating appropriate learning environment where the students can facilitate learning. This paper tries to focus on how to create an effective learning environment by looking at advantages of CALL. When CALL is used as an additional learning tool, educators need to focus on integrating CALL into regular classroom learning. The case study of five groups using CALL in relation to the results of TOEIC scores supports the importance of providing appropriate learning environment and instructional practices in CALL in order to facilitate learning.

## **LEARNING ENVIRONMENT IN CALL**

The varieties of computer-based materials for language learning sounds promising to enhance the traditional language learning. However, in order to maximize the effect of CALL, it is essential to critically evaluate CALL and its purpose. In the regular classroom, language instructors create program by providing an appropriate learning environment in order to reach certain learning goal. If students acquire language skills through variety of practices in the regular classroom, they should be exposed to appropriate learning practices in CALL as well in order to facilitate leaning (Knowles, 2002). The use of technology doesn't simply lead to the effective learning since it will not transform teaching by itself (Armstrong & Yetter-Vassot, 1994; Burnett, 1999). Therefore, it is essential for the instructors to develop creative and pedagogical activities that will utilize technology in CALL.

According to the past research on CALL, much of them discuss the importance of instructional support in order to provide appropriate tasks, behavior and guidance for students (Burnett, 1999; Knowles, 2002; Matsubara, 2001; Meskill & Mossop, 2000; Warschauer, 2000). For example, Warshauer argues that the use of CALL requires practice in authentic communication, guidance of a teacher to critically analyze the context and to understand the effective use of information, and transformed practice for higher quality outcomes. While CALL provides more individualized learning process, it is also affected by classroom process, which reflect teacher's beliefs and attitude about their students and types of learning environment that they create (Burnett, 1994). Thus, it entails teacher's role for effective outcomes.

While teachers play an important role for CALL, types of learning environment they create is different from teacher-oriented classroom. One of the important features of CALL is that computer-assisted learning changes the dynamics of the classroom interaction.

According to Murray (2000), students in CALL interacted with peers and gave feedback and support while students showed less student initiated interaction in teacher-oriented instruction. Thus, the teacher plays a subordinate role rather than controlling the direction and the structure of the classroom (Meskill & Mossop, 2000).

## **CALL TO PROMOTE INDIVIDUALIZED LEARNING**

The use of technology evolved the traditional language-learning environment to a new environment adding different ways to learn the language. When students read from the printed materials, they use skills such as skimming, scanning, and postulating words within the context (Anderson-Inman & Horney, 1998). However, when they read from the computer, it is necessary for them to decode messages from computer screen, which adds graphics and audiovisual images (Bolter, 1998; Kress, 1999). In addition, when students are to choose information from computers, it requires them to critically evaluate the materials in order to find the right information. In other words, the students need the ability to understand and negotiate multiplicity of media and discourses (Warchauer, 2000) Thus, CALL involves not only passive learning as the students experience from printed materials, but also involves active, decision making process. As a result, learning in CALL provides varieties of activities and learning processes that are more individualized than linear textbook based instruction. When CALL is used as a supplement to existing courses, it will enhance traditional teaching with the help of computers (Armstrong & Yetter-Vassot, 1994).

While students are restricted in teacher-oriented classroom learning environment, CALL provides students with wide variety of learning options, which allow them to work at their own pace and select materials based upon their needs (Cummins, 1998; Matsubara, 2001). In contrast, learning in the regular classroom is restricted by many factors such as peer pressure, restricted interaction, physical environment and teacher initiation. Kamhi-Stein (2000) discussed that Web based communication strategy reduced anxiety particularly among non-native English speaking students. When students communicate through a computer, they had more opportunities to express their ideas and reflect on them without being pressured. Another study by Spensin (1996) regarding listening exercises in CALL found that students felt comfortable working individually on computers because they are afraid of making mistakes in front of their peers. Furthermore, Murray (2000) found that Web based discussion allowed the students to process new ideas without cultural and linguistic barrier.

When the interactive and multimedia capabilities of computers are enhanced, computers will become attractive learning tool (Armstrong & Yetter-Vassot, 1994). One of the

attractive features of CALL is that computers can provide authentic, content rich materials with sound and graphics. Lieberman (1998) argues that students enjoy multi-modal materials and showed interest and positive attitude due to flexibility in CALL. In addition, responses and feedback on computers are immediate and it creates positive learning experience. Such learning accommodates different learning process and learning style. Thus, students can control their learning since they can review the materials that they wish to review and further practice for their comprehensible input (Chun & Brandil, 1992; Krashen, 1997). As Hoffman (1996) states, interactivity and learner control is a key success to effective CALL environment. When students are not constrained by sequential instruction, it enhances more individualized learning and students can initiate interaction and meaningful exercises.

Since CALL enhances individualized learning, the students will experience varieties of learning exercises by using technology. One of the positive learning experiences, which affected raising students' motivation, was to create their own product by using computers. Meskill & Mossop (2000) found that tremendous interest in learning through electronic-text was reported through observation and interview with the students. The students showed enthusiasm as a result of creating products from e-texts. When students are able to share their finished products with peers and families, they showed great excitement. Bicknell (1999) also suggests that web publishing works as a motivation tool, since it will give them the opportunity to share their product with global audience. If students could share what they learn through CALL, they have feelings of success as a result of demonstrating their achievement to the audience.

## **CALL TO PROMOTE EFFECTIVE LEARNING**

In order to promote effective learning in CALL, the educators need to focus on how to create appropriate learning environment in CALL. Since major advantages in CALL are to provide the students with more individualized learning in CALL, the effective CALL program should maximize these advantages. However, in order to facilitate learning in more individualized way than in the regular classroom learning, the educators need to consider three issues that are important in creating effective individualized learning environment in CALL.

### **Integration to the Regular Language Program**

Since the varieties of learning opportunities are provided in CALL, the teachers need to

apply the materials in creative and imaginative ways once it is available. When CALL is newly introduced to the regular language program, it is a teacher's role to investigate how CALL should be integrated into the current language program by maximizing the effect of technology. CALL works not as a separate function, but as an additional instructional approach to the regular teacher-oriented instruction. Thus, most importantly, appropriate course design such as course syllabus and specific learning goals as a result of CALL needs to be constructed in order to provide effective linguistic practices. In order to promote learning, acquisition of skills and quality of practices are crucial, and CALL can offer such practice in more individualized and student-oriented ways than the teacher-oriented learning. If the teachers can utilize CALL in such manner, learning context as a result of integration of CALL to regular language program becomes rich in its presentation and enhances learning.

### **Teacher's Role**

Although many researchers have found the advantage of using technology to enrich learner environment and exploit individual learning strategies, it entails teacher's role to support appropriate learning environment. Once technology is available, it is teacher's role to exploit fully the potential of CALL. It is teacher's role to discover how to use CALL in order to provide effective learning exercises. For example, which of the four linguistic skills is emphasized or what type of learning strategies is used to achieve specific learning goal. Burnett (1999) argues that the teacher needs to understand the use of technology and its outcomes, since teacher's knowledge and theory of teaching impact on what the students learn in CALL. Technology can add variety of experiences, but the use of technology by itself doesn't promote learning. Thus, teacher's role is essential as a course developer, advisor and facilitator of learning in CALL.

### **Task Design**

In order for CALL to be used in the most productive and educational ways possible, teachers need to create appropriate task designs. For creating appropriate tasks, the teachers need to focus on the outcome of a specific language program since it reflects on what kind of language learning should take place in CALL. Although the predicted outcome of learners as a result of CALL may be more individualized and rich in its variety, it is still influenced by learning environment they create and requires direction for skill practices (Knowles, 2000). Thus, the evaluation of outcomes in any form such as an assignment or interactive skill demonstration via e-text can provide specific learning goals in CALL (Meskill & Mossop, 2000).

## **PURPOSE OF THE STUDY**

Although previous research and discussions on CALL suggest the effect of CALL, CALL needs to be incorporated carefully into the regular language instruction in order to facilitate learning. For example, it is important to create learning environment where students can utilize individualized learning. In addition, it is also suggested that CALL entails teacher's role to support appropriate learning environment. Thus, it is important to use CALL as an additional instruction to regular language classroom in order to facilitate learning. Researchers such as Armstrong & Yetter-Vassot (1994), Burnett (1999) and Matsubara (2001) have argued the importance of incorporating CALL into a regular language instruction with the support of teacher's role to promote learning. Since the previous survey conducted by Matsubara (2001) concluded that the students are less likely to use CALL for self-study purposes unless it is incorporated into syllabus, this study tries to further investigate how learning environment will influence students' learning attitude and motivation to learn in CALL.

This study collected data on CALL over a period of one academic year to investigate the following questions: (1) Is it necessary to incorporate CALL into a regular language instruction? (2) How important is teacher's role in CALL? (3) Do the student's language skills improve over time?

## **METHOD**

### **Context and participants**

This study involved 5 freshmen English classes taught by two different instructors at Aomori Public College (APC). Students are all enrolled for required freshmen English at APC during 2001 academic year. The students received regular 60 minutes English instruction 4 times a week during the semester. During the spring semester, CALL was incorporated into syllabus and was used once a week with teacher observation. During the fall semester, CALL was listed in the syllabus, but it was limited to self-study only. In other words, the students used CALL only for their homework. The students are required to use CALL for about an hour for their study.

At APC, ALC Net Academy was installed for CALL program. ALC program includes reading and listening exercise with varieties of topics. In addition, program includes Test of English for International Communication (TOEIC) mock test for the students who are studying for TOEIC.

## Instruction

Instructor X: Throughout the academic year, instructor X focused on giving feedback to the students and checked students' progress on CALL. The students' progress was recorded each time on computer so that instructor could check their progress from the computer screen. In addition to checking the recorded progress, instructor X gave handout materials to the students each time. The students were asked to write what materials they studied and what kind of strategies and exercises they used to study the materials.

Instructor Y: While instructor X checked students' progress constantly during the semester, instructor Y did not provide any handout materials for the students to turn in each time. Since the students had no in-class instruction during the fall semester and it was strictly on self-study basis, instructor Y depended on students' motivation and their own interest in using CALL. During the semester, instructor Y told the students orally to use CALL for their self-study, but did not check their progress.

## Data Collection

Data collected in this study included the result of TOEIC test and total hours that students spent on CALL during the semester. The school administered TOEIC three times a year and this study includes the test scores before and after each semester. Total hours that the students spent on CALL were recorded in the computer program. Total hours that the students spent on each section, reading, listening and TOEIC, were collected.

**Table 1**  
**Comparison of CALL use by instructor X**

	Total Minutes	Listening	Reading	TOEIC practice test	N
CALL used in Class (Spring)					
Class A	5:05:04	1:53:02	1:39:58	1:32:04	19
Class B	4:49:42	2:02:33	1:20:56	1:26:12	22
CALL not used in Class (Fall)					
Class C	4:04:19	1:15:15	1:33:12	1:22:51	18
Class D	2:47:02	0:58:03	1:12:21	0:36:38	14

**Table 2**  
**Comparison of CALL use by instructor X and Y**

	Total Minutes	Listening	Reading	TOEIC practice test	N
CALL not used in Class (Fall)					
(X)					
Class C	4:04:19	1:15:15	1:33:12	1:22:51	18
(X)					
Class D	2:47:02	0:58:03	1:12:21	0:36:38	14
(Y)					
Class E	0:00:00	0:00:00	0:00:00	0:00:00	18

**Table 3**  
**Comparison of TOEIC scores before and after the semester**

	TOEIC score Average before	TOEIC score Average after	Average Gain	N
CALL used in Class (Spring)				
Class A	356	388	31	19
Class B	328	416	88	22
CALL not used in Class (Fall)				
Class C	435	457	21	18
Class D	364	366	2	14
Class E	531	507	-24	18



## **SUMMARY OF FINDINGS**

### **Results of data collection**

The results of data collection showed that when CALL is used along with teacher observation, the students spent more hours on CALL than without it. Although Class A, B, C, D were taught by the same instructor, the average time they spent on CALL between spring and fall semester was different. In spring semester, average time that the students spent on CALL was 5 hours 24 minutes while in fall semester they spent 3 hours 25 minutes. In case of instructor Y, since this instructor depended on the students' self-study, the students spent no time on CALL during the semester.

During the spring semester, Class A and Class B spent more time on listening section than reading section. In fall semester, Class C and Class D spent more time on reading section than listening section. Class D had relatively low gains on the TOEIC test and spent fewer hours on TOEIC practice test section than other classes.

Regarding language proficiency, the students in Class A and B gained an average of 59.5 points on the TOEIC test in spring semester while the students in Class C and D gained 11.5 points in fall semester. In case of class E, the students had negative gains of -24 points on the TOEIC test. The results from class E suggests that students did not use CALL unless it is required by course assignments and this supports the previous statement by Matsubara's (2001) argument about the importance of incorporating CALL into a regular language instruction. In order for students to take initiative to learn, the students need direction to utilize CALL for their learning.

### **Instructional differences**

The major differences that are not listed in the table are instructional differences between two instructors. While instructor X focused on evaluating the assignments and gave feedback to the students, instructor Y depended on the students' motivation. As Burnett (1999) stated, teacher's knowledge and theory of teaching impact on what the students learn in CALL. Thus teacher instruction in CALL plays an important role on learning. Knowles (2000) also argues that CALL is influenced by learning environment and requires direction for skill practices for promoting better learning. Thus, it is dangerous to place CALL only for self study assuming that students are disciplined to use CALL from their own will. The results of data collection suggests that CALL needs to be carefully structured and placed within the language program so that the students are provided by appropriate guidance and feedback on what they learn from CALL.

## **PEDAGOGICAL IMPLICATIONS**

Previously, three questions were addressed in order to find an effective way to incorporate CALL into regular language instruction and to provide appropriate learning environment in CALL. The following opinions attempt to answer these three questions reflecting on the findings based on this study. By reflecting on the findings, the educators will be able to adapt and develop more constructive way of teaching CALL within the regular language program.

### **Is it necessary to incorporate CALL into a regular language instruction?**

The results of the findings suggest that when CALL is incorporated into a classroom instruction, students tend to spend more time on CALL. Although the students are required to use CALL along with the regular classroom instruction, they are less likely to spend time on CALL when it is not used in the classroom with teacher's instruction. In addition, students in Class E did not use CALL at all since there were no regular assignments and checks by the instructor. It is clear from the Table 1 that students spent more hours on CALL when it is used in the classroom with teacher's instruction than without it. As stated earlier, it is important to create effective environment in order to promote learning in CALL. Thus CALL should be used to create additional learning environment for the students in order to facilitate their individual process of learning which is the major focus of learning in CALL.

### **How important is the teacher's role in CALL?**

The findings also suggest the importance of teacher instruction on CALL. For example, regular assignments and checks by instructors seem necessary in order to promote learning. In fact, the result of Class E showed that even the students with relatively higher TOEIC scores than other students facilitated no CALL during the semester without specific instructions and required assignments. This supports previous arguments about the importance of teacher's role in CALL (Burnett, 1999; Knowles, 2000; Matsubara, 2001; Meskill & Mossop, 2000). Furthermore, teachers need to carefully structure CALL environment and provide specific learning goal for CALL. In order to create effective learning environment in CALL, teacher's direction and feedback on students' learning is essential.

### **Did students' language skills improve over time?**

Since it is difficult to practice listening skills effectively outside classroom, listening activities on CALL may have helped students to improve listening skills. Class A and B which used more hours on listening practice than reading practice showed higher gains in their TOEIC scores than those who did not. Considering the fact that not many students have access to listening practice outside class depending on the area where they live, the teachers needs to focus more on listening practice than reading practice on CALL in order to utilize its advantages.

Unfortunately, the students in class E did not use CALL at all during the semester. This explains that those students were not motivated enough to use CALL for self-study purposes, and consequently they had fewer study hours outside class than those who used CALL during the semester. The amount of time not spent on CALL could have been the cause of negative gains, and is worth investigating further.

While TOEIC score gains among 5 different classes showed positive effect of CALL on students' outcomes, it is not clear that there is a direct relationship between the time that the students spent on CALL and TOEIC score gains. Because TOEIC score gains are the results of many other factors such as classroom instruction, motivation, and out-of-class learning, CALL may not be the only reason for positive gains in TOEIC score.

### **CONCLUSION**

Considering technology as one of the learning tools for the students, how to utilize the tool depends on the learners. However, when computer assisted learning is introduced to develop language skills, the learners need some guidance to facilitate learning. CALL plays a crucial and extensive role in the development of language skills, when it is utilized along with careful task design and continuous exploitation of teachable moments by language instructors. In order for the language educators to provide effective learning environment in CALL, language instruction should be carefully constructed along with teacher's support.

The results of this study support the importance of integrating CALL into the curriculum along with the regular classroom learning. When CALL is structured with appropriate learning tasks, the students enhance and accelerate learning expanding the potential benefit of CALL. The results of this study is limited regarding the relationship between CALL and TOEIC scores, and further investigation is necessary to support the effect of CALL on language proficiency. CALL will provide continuous support for developing language skills when instructors understand how to create an effective learning environment in CALL.

Received : January 15, 2003, Accepted : January 16, 2003

## References

---

- Anderson-Inman, L., & Horney, M. A. (1998). Transforming text for at-risk readers. In D. Reinking, M. C. McKenna, L. D. Labbo, & R. D. Kieffer (Eds.), *Handbook of literacy and technology: Transformations in a post-typographic world* (pp. 15-43). Mahwah, NJ: Erlbaum.
- Armstrong, K. M., & Yetter-Vassot, C. (1994). Transforming teaching through technology. *Foreign Language Annals*, 27, 475-486.
- Bolter, J. D. (1998). Hypertext and the question of visual literacy. In D. Reinking, M.C. McKenna, L. D. Labbo, & R. D. Kieffer (Eds.), *Handbook of literacy and technology: Transformations in a post-typographical world* (pp. 3-13). Mahwah, NJ: Erlbaum.
- Bicknell, J. (1999). Promoting writing and computer literacy skills through student authored webpages. *TESOL Journal*, 8, 20-26.
- Burnett, J. (1999). Classroom-management-classroom survival: One teacher's story of constructing practice in a computer-equipped foreign language classroom. *Foreign Language Annals*, 32, 279-294.
- Cummins, J. (1998). E-lective language learning: Design of a computer assisted text-based ESL/EFL learning system. *TESOL Journal*, 7, 18-21.
- Chun, D. M., & Brandl, K. K. (1992). Beyond form-based drill and practice: Meaning enhanced CALL on the Macintosh. *Foreign Language Annals*, 25, 255-267.
- Edwards, N. (2002). CALLing Japan: A survey of professional opinion. *The Language Teacher*, 26 (8), 10-12
- Hoffman, S. (1996). Computers and instructional design in foreign language/ESL instruction. *TESOL Journal*, 5, 24-29.
- Kamhi-Stein, L. D. (2000). Looking to the future of TESOL teacher education: Web-based bulletin board discussions in a methods course. *TESOL Quarterly*, 34, 423-455.
- Knowles, L. (2002). Combining multimedia and classroom activities. *The Language Teacher*, 26 (7), 29-31.
- Krashen, S. (1982). *Principles and Practice in Second Language Acquisition*. New York: Pergamon Press.
- Kress, G. (1999). "English" at the crossroads: Rethinking curricula of communication in the context of the turn to the visual. In G. E. Hawisher & C. Selfe (Eds.), *Passions, pedagogies, and 21<sup>st</sup> century technologies* (pp. 66-88). Logan: Utah State University Press.
- Lieberman, J. (1998). Computer aptitude and comfort level as precursors to computer-based instruction. In P. Lewis (Ed.), *Teachers, Learners, and Computers: Exploring Relationships in CALL* (pp. 103-112). Nagoya: The Japan Association for Language Teaching Computer-Assisted Language Learning National Special Interest Group.

- 
- Matsubara, K. (2001). Incorporating CALL into English language program. *Journal of Aomori Public College*, 7(2), 44-51.
- Meskill, C., & Mossop, J. (2000). Electronic texts in ESOL classrooms. *TESOL Quarterly*, 34, 585-592.
- Meskill, C., & Swan, K. (1999). Response-based multimedia: A pilot study of Kidspace in four elementary classrooms. *Journal of Educational Computing Research*, 18, 339-367.
- Murray, D. E. (2000). Protean communication: The language of computer-mediated communication. *TESOL Quarterly*, 34, 397-421.
- Spensin, J. (1996). *Comparison of EN061 classes that used computers with those that did not*. Kolonia, Pohnpei: College of Micronesia, Languages and Literature Division.
- Warschauer, M. (2000). The changing global economy and the future of English teaching. *TESOL Quarterly*, 34, 511-535.